

## **I. EXECUTIVE SUMMARY**

### **Overview**

The Kivalina Clinic is a wood frame building on a post and pad foundation with a gable roof that was constructed in 1981. It consists of a large waiting area with an office, an exam room, and a dental/sleep room. The clinic uses a honey bucket instead of a toilet in the bathroom that contains the mop sink as well. One exam room is the primary exam room. The dental/sleep room is also used as a medical supply room and for trauma use. There is very limited office area.

### **Renovation and Addition**

The existing clinic is 1064 s.f. and would require an addition of 936 s.f. to meet the 2000 s.f. minimum area recommended for a medium clinic by the Alaska Rural Primary Care Facility study. Approximately 75% of the floor area would have to be remodeled in a renovation/addition project. Additionally, the poor condition of the building will require extensive upgrades to improve the foundation, thermal enclosure and other building systems. The cost of required renovations and code upgrades, combined with the cost of a new addition equal 129% of the cost of a new clinic.

### **New Clinic**

Because the cost of renovation and addition is more than 75% of the cost of new construction, a new clinic of at least 2000 s.f. should be built to replace the existing clinic. The community is planning to move their town to a new site eight to ten miles away to an area that has more suitable land and is less subject to severe tidal action. A clinic should be built to withstand a move.

## **II. GENERAL INFORMATION**

### **A. The Purpose of the Report**

ANTHC has entered into a cooperative agreement with the Denali Commission to provide management of the small clinic program under the Alaska Rural Primary Care Facility (ARPCF) assessment, planning, design, and construction. The purpose of the Code and Condition Survey Report is to validate the data provided by the community in the Alaska Rural Primary Care Facility Needs Assessment and to provide each community with a uniform standard of evaluation for comparison with other communities to determine the relative need among the communities of Alaska for funding assistance for the construction of new or remodeled clinic facilities. The information gathered will be tabulated and analyzed according to a set of fixed criteria that will yield a priority list for funding. Additionally, the relative costs of new construction vs. remodel/addition will be evaluated to determine the most practical and cost effective means to bring the clinics up to a uniform standard of program and construction quality. The information provided in this report is one component of the scoring for the small clinic RFP that the Denali Commission sent to communities in priority Groups 1 and 2.

### **B. The Assessment Team**

The survey was conducted on May 21, 2001. John Crittenden, AIA, Architects Alaska and Bill Henriksen, PE, RSA Engineering completed the field inspection for this project. Mark Anderson of ANTHC and Jim Howell of Maniilaq Association were the team escorts. Mark reviewed alternative site locations with village leaders. Jim is an Environmental Health Specialist for the region and this trip accounted for one of his scheduled community visits. Both Mark and Jim knew the village contacts personally and made introductions and conducted the village briefings. Team members who assisted in the preparation of the report included Stephen Schwicht and Ian VanBlankenstein of NANA/DOWL, project managers for the survey team, and Jay Lavoie of Estimations, Inc.

### **C. The Site Investigation**

The format adopted is similar to the “Deep Look”, a facility investigation and condition report used by both ANTHC and the Public Health Service, in maintaining an ongoing database of facilities throughout the country. Facilities are evaluated with respect to the requirements of the governing building codes and design guidelines. Building code compliance, general facility condition, and program needs have been evaluated. This written report includes a floor plan of the clinic and a site plan indicating the existing clinic site. Additional information gathered during the site investigation that is referred to in the report, which includes sketches of building construction details, a building condition checklist, and proposed plans for village utility upgrades, are not included with this report. This information is available for viewing at ANTHC’s Anchorage offices and will be held for reference.

### **III. CLINIC INSPECTION SUMMARY**

#### **A. Community Information**

Kivalina has a current population of 377 as published in the 2000 U.S. Census. It is located at the tip of an 8-mile barrier island, approximately 80 air miles northwest of Kotzebue and is located in the Kotzebue Recording District. The community is engaged in the planning process for the relocation of the community to a larger, more protected land area south along the coast. Kivalina is a part of the NANA Regional Corporation. Refer to the attached Alaska Community Database prepared by the Alaska Department of Community and Economic Development in Appendix C.

#### **B. General Clinic Information**

The Kivalina Clinic appears to be about 20 years old. This building is approximately 1064 s.f. and is constructed of conventional frame walls, floor, and roof. The building exterior is in very poor condition and needs to be reinsulated, a condition not reflected in the interior, which is very clean, light, and well maintained. At the time of the visit the building was still nearly half covered in a snow drift that was eave height. The drift built up on the side away from the entry, however, the back door had to be shoveled out to a depth of nearly 8 feet to maintain a clear exitway.

#### **C. Program Deficiency Narrative**

The clinic program at Kivalina is similar to other clinics in the region except that all of the rooms are used for combination exam/lab/office. All of the filing is done in a bank of file cabinets that line one wall of a very large waiting room. The waiting area could be reduced and easily accommodate a space for a travel clerk/reception workstation. There are no clear areas designated for lab or medical supplies. The trauma space is poorly equipped. The bed is a patient type that limits access to patient's head. A fold-up cot could be provided for overnights. The main exam room has a desk in it which should be moved out and an exam table installed. The second exit is from the trauma room. This door should be relocated to one wall of the reception room.

The following table illustrates a comparison between the current actual square footage (SF) and the APCF recommended SF. Minimum Program Goal: Medium Clinic – 2000 s.f.

**Table 1 – ARPCF Clinic Area Comparison**

<b>Purpose/Activity</b>	<b>#</b>	<b>Existing Net SF</b>	<b>#</b>	<b>ARPCF Medium</b>	<b>Difference</b>
Arctic Entry	2	40	2	2 @ 50=100	60
Wait/Recep/Closet	1	272	1	150	-122
Trauma/Telemed/Exam	1	139	1	200	61
Office/Exam	1	143	1	150	7
Admin./Records	1	100	1	110	10
Pharmacy/Lab	-		1	80	80
Portable X-ray	-		-		-
Spec. Clinic/Health Ed./Conf.	-		1	150	150
Patient Holding/Sleep Room	-		1	80	80
Storage	1	95	1	100	5
HC toilet	1	37	2	2 @ 60=120	84
Janitorial Closet	-		1	30	30
Total Net Area				1270	
Mechanical Room	20			147	127
Morgue				30	30

The Kivalina Clinic has a current gross area of 1064 s.f. This would require a gross building area expansion of approximately 936 s.f. in order to meet the 2000 s.f. minimum ARPCF requirement for a Medium Clinic.

An analysis of the existing building's program functions follows. Please also refer to the floor plan in Section H:

- **Arctic Entries:** The front door has an arctic entry which is nominally 4' x 5' leading to a small landing and a short ramp to grade. This is inadequate to accommodate a stretcher. The back door opens through an even smaller vestibule onto a small landing with a stair to grade. Access through these vestibules is very awkward with a stretcher.
- **Waiting:** The waiting area in this building is a comfortable space with good windows facing south, good furniture, and amenities. A portion of the room is used for patient file cabinets.
- **Trauma/Telemed/Exam:** The trauma/exam room measures 10'-6" x 13'. This is not large enough for trauma response and is further restricted by the dental chair and

overnight bed which occupy a large portion of the room. The Telemed equipment is moved from room to room but resides in this space.

- **Office/Exam:** The clinic has one functioning exam room in addition to the trauma/sleep/dental room. It has an administrative desk in it restricting its use as an exam room.
- **Administration/Records:** The administration area is divided between one irregularly shaped 100 s.f. office and a portion of the large waiting area.
- **Pharmacy/Lab:** It is difficult to imagine how lab/medicine functions are handled in this clinic. There is a large storage room for medical supplies and cabinetry in the trauma room. The main exam room handles most of the actual lab activity.
- **Specialty Clinics:** When they occur, specialty clinics use the dental/trauma space and share the main waiting area.
- **Patient Holding/Sleep:** This occurs in the dental/trauma room.
- **Storage:** A long narrow space of 100 s.f. is used for medical supply storage. This area accommodates large quantities of supplies.
- **HC Toilet Room:** The toilet has been removed from the small toilet room, which also includes a mop sink. The patients and staff currently use a honey bucket placed on the floor where the toilet should be.
- **Janitor Closet:** None provided except what is in the toilet room.
- **Ancillary Spaces:** There are no ancillary spaces in this clinic.

#### **D. Architectural/Structural Condition**

The building structure is relatively intact, considering its age, however exterior deterioration of siding, windows and roofing contribute to an overall poor to very poor appearance. To adequately address the thermal requirements of a building in this climate, given the extreme cold, and high cost of fuel, the roof, walls and floor should have additional insulation. Additional batt insulation in the attic should be added to bring the R-value up to about R-40. The walls should be furred with 1.5" rigid insulation, ice and water shield, and new siding. The floor should be reinsulated with 3.5" foam panels fit between the beams and placed with sealant and joint trim. The floor requires new subfloor and sheet flooring to smooth over the irregularities which cause chipping and deterioration. The floor, however, is well maintained and, generally, in good condition.

The ceiling is a good quality 2x2 T-Bar installation concealing exposed polyethylene vapor retarder stapled to underside of roof trusses. Exam rooms have prefinished white paneling which is better than most exam rooms visited.

#### **E. Site Considerations**

The existing site is centrally located along the main road/winter path and is near the school. There is a current plan being developed to move the village to a new site farther away from the ocean as the usable land on the barrier island where the village is currently located is being eroded by storm and tidal action. This process will take many years. Any improvements made for health care should incorporate a clear plan for the relocation of the structure. A facility which is added on to may not transport as well as a single structure with a unified foundation system. The current site was identified as the location for a new clinic, if approved.

Site utilities include village water, sewer, power, and telephone service directly to the building. The sewer system was frozen during our inspection. The freeze up was reported as an annual event.

#### **F. Mechanical Condition**

**Heating and Fuel Oil:** A Williamson forced air furnace provides heating for the building. Ductwork from the furnace provides warm air to all rooms. A Toyostove Laser 73 provides back up for the furnace. When the building was inspected, it was found that the furnace was inoperative. There were a number of deficiencies associated with the furnace that suggest it should be replaced and that its replacement needs to be in a larger mechanical area to provide minimum clearances to combustibles. Its condition is described in the Deficiency Evaluation and Cost Assessment forms. Fuel for the furnace is provided from a 500-gallon tank and fuel for the Toyostove is provided from a 55-gallon tank. Both tanks are located too close to the building, are not well supported and their piping and valves needs to be replaced and supported properly. The 55-gallon tank is not UL listed and needs to be replaced with an appropriate tank.

**Ventilation:** The forced air furnace system does not provide outside air for ventilation. All air is recirculated. If the building continues to be heated with a forced air furnace it needs to be ducted to allow outside air into the building to satisfy the ventilation requirements of the people in the clinic. An exhaust fan serving the restroom has its ductwork terminating in the ceiling space above the ceiling. It is required to exhaust to the outside and needs to be corrected. Windows in the building are operable types, but should not be relied upon for ventilation.

**Plumbing:** Cold water is provided into the clinic from the village water supply. Hot water is generated on site from an electric water heater. The water heater is fairly old and shows signs of corrosion near the upper element. A gravity waste line connects for the building into the village sewer system. The sewer system froze early in the winter and had not thawed by the time of our visit. This freeze-up condition is reported to occur each winter. Plumbing fixtures in the clinic include a lavatory and mop sink in the restroom and a single compartment sink in

exam room #2. The lavatory and sink do not meet ADA requirements. The sink in the exam room has very low water flow, which appears to be obstructed. It also has a very small bowl and is not very useable. The mop sink is not provided with a vacuum breaker, so it provides the potential for cross contamination into the water system. There is no toilet in the restroom only a honey bucket.

All plumbing fixtures appeared to be plumbed and vented correctly, although the entire system was not accessible for inspection. Overall, the conditions of the plumbing fixtures were poor and their replacement should be considered.

### **G. Electrical Condition**

**Power:** 120/240-volt single-phase power is provided to the clinic's electrical meter from an underground service. A 100-amp breaker is provided after the meter and a 100-amp panel is provided inside the building. The service is fed with aluminum conductors. The electrical service appeared to be grounded correctly with a grounding wire extending down the side of the building to a grounding rod or to the building foundation (snow located around the perimeter of the building prevented us from determining the exact grounding method). The electrical panel installation appeared neat and orderly. The electrical panel has capacity of 16 breakers, 14 breakers are installed one is a spare. Wiring from the panel was done using Romex. The numbers of receptacles inside the building is appropriate, no plug strips were observed. Receptacles located within 10 feet of the exam room sinks and the restroom sink are not protected with GFCIs. There were no receptacles on the outside of the building. A number of wiring and other electrical deficiencies were identified during the inspection and can be found in the Deficiency Evaluation and Cost Assessment Forms.

**Lighting and Emergency Fixtures:** florescent fixtures throughout the building provided interior lighting. All fixtures were recessed and use four 4-ft. 35-watt 40F lamps except one fixture using TL-70 lamps. Lighting levels were reported as satisfactory and appeared acceptable. The fixtures are fairly low quality and many of the lens covers were damaged or missing. When the building is renovated the light fixtures should be replaced. Exterior lighting was provided with incandescent fixtures at the entrances only. The fixtures were in poor condition and should be replaced. Only one emergency light fixture (plug in type) is located in the building near the back entrance. An emergency light fixture needs to be installed near the front entrance. There was a single metal exit sign at the front entrance and two for the back exit. They should be replaced with illuminating type exit fixtures. There were battery type smoke detectors in each room. All were in good working condition.

**Telecommunications:** Four phone lines serve the building, two for the local incoming line, a fax line and a dedicated line for communication with the Kotzebue Hospital. A Telemed system was also recently installed.

**H. Existing Facility Floor Plan**

See following sheet for the floor plan of the existing clinic.



**J. Community Plan**

Refer to the attached community plan for location of the existing clinic and the proposed location for the new clinic. If the existing clinic site is the preferred location or if a new site has not yet been selected, only the existing clinic location will be shown.

#### IV. DEFICIENCY EVALUATION AND COST ASSESSMENT

The attached deficiency reporting forms are based on Public Health Service form AK H SA-43. The forms are numbered sequentially for each discipline starting with **A01** for Architectural and structural deficiencies, **M01** for Mechanical deficiencies and **E01** for Electrical deficiencies.

##### A. Deficiency Codes

Deficiencies are further categorized according to the following PHS Deficiency codes to allow the work to be prioritized for federal funding, should that apply. Deficiency codes used in this survey include:

- 02 Fire and Life Safety:** These deficiencies identify areas where the facility is not constructed or maintained in compliance with provisions of the state mandated building codes including the International Building Code, The Uniform Fire Code, NFPA 101, The Uniform Mechanical and Plumbing Codes and The National Electrical Code.
- 03 Safety:** These deficiencies identify miscellaneous safety issues.
- 04 Environmental Quality:** This addresses DEC regulations, hazardous materials and general sanitation.
- 05 Program Deficiencies:** These are deficiencies which show up as variations from space guidelines established in the Alaska Primary Care Facility Facility Needs Assessment Project and as further evaluated through observation at the facility site and documented in the facility floor plans.
- 07 Disability Access Deficiencies:** The items with this category listing are not in compliance with the Americans with Disabilities Act.
- 08 Energy Management:** These deficiencies address the efficiency of heating systems/fuel types and the thermal enclosures of buildings.
- 11 Structural Deficiencies:** These are deficiencies with the fabric of the building. It may include the foundations, the roof or wall structure, the materials used, the insulation and vapor retarders, the attic or crawl space ventilation and the general condition of interior finishes. Foundation systems are included in this category.
- 12 Mechanical Deficiencies:** These are deficiencies in the plumbing, heating, ventilating, air conditioning, or medical air systems.
- 13 Electrical Deficiencies:** These are deficiencies with electrical generating and distribution systems, fire alarm systems and communications systems.
- 14 Utilities:** This category is used for site utilities, as opposed to those within the building and may include sewer lines and water and power distribution.

## **B. Photographs**

Each sheet has space for a photograph. Some deficiencies do not have photos. Photographs do not cover all areas where the deficiencies occur but are intended to provide a visual reference to persons viewing the report who are not familiar with the facility. Additional photographs of the clinic and the surrounding area are included in Appendix B.

## **C. Cost Estimate General Provisions**

### **New Clinic Construction**

- **Base Cost**

The Base Cost provided in Section VI of this report is the direct cost of construction, inclusive of general requirements (described below) and contingency for design unknowns (an estimating contingency). The base cost is exclusive of overhead and profit, mark-ups, area cost factors and contingencies. Material costs for the project are all calculated FOB Anchorage and labor rates are based on Davis Bacon wages, regionally adjusted to Anchorage. Transportation costs, freight, Per Diem and similar costs are included in the base costs. The Project Factors and Area Cost Factor are multipliers of the base costs.

General Requirements are based on Anchorage costs without area adjustment. It is included in the Base Cost for New Clinics. These costs are indirect construction cost not specifically identifiable to individual line items. It consists of supervision, materials control, submittals and coordination, etc. The general requirements factor has not been adjusted for Indian Preference.

The Design Unknowns Contingency is an estimator's contingency based on the schematic nature of the information provided, the lack of any real design, and the assumption that any project will encompass related work not specifically mentioned.

- **Project Cost Factors**

Equipment Costs for new medical equipment has been added at 17% of the cost of new floor space.

Design Services is included at 10% to cover professional services including engineering and design.

Construction Contingency is included at 10% of the Base Costs to cover changes encountered during construction.

Construction Administration has been included at 8% of the Base Costs. This is for monitoring and administration of the construction contract.

- **Area Cost Factor**

The Area Cost Factor used in the cost estimates for this facility is shown in Section VI of this report. The area cost factors are taken from a recent study completed for the Denali Commission for statewide healthcare facilities. The numbers are the result of a matrix of cost variables including such items as air travel, local hire costs, room and board, freight, fire protection equipment, foundation requirements, and heating equipment as well as contractor costs such as mobilization, demobilization, overhead, profit, bonds and insurance. These parameters were reconsidered for each village, following the site visit, and were modified, if necessary.

- **Estimated Total Project Cost of New Building**

This is the total estimated cost of the project, including design services. The construction contract will be work subject to Davis Bacon wages, and assumes construction before year-end 2001. No inflation factor has been applied to this data.

**Remodel, Renovations, and Additions**

- **Base Cost**

The Base Cost provided in the specific deficiency sheets is the direct cost of construction, exclusive of overhead and profit, mark-ups, area cost factors and contingencies. Material costs for the project are all calculated FOB Anchorage and labor rates are based on Davis Bacon wages, regionally adjusted to Anchorage. Most of the deficiency items do not constitute projects of sufficient size to obtain efficiency of scale. The estimate assumes that the projects are completed either individually, or combined with other similar projects of like scope. The numbers include moderate allowances for difficulties encountered in working in occupied spaces and are based on remodeling rather than on new construction costs. Transportation costs, freight, Per Diem and similar costs are included in the base costs. The General Requirements, Design Contingency and Area Cost Factors are multipliers of the base costs.

The cost of Additions to clinics is estimated at a unit cost higher than New clinics due to the complexities of tying into the existing structures.

Medical equipment is calculated at 17% of Base Cost for additions of new space only and is included as a line item in the estimate of base costs.

- **General Requirements Factor**

General Requirements Factor is based on Anchorage costs without area adjustment. The factor is 1.20. It is multiplied by the Base Cost to get the project cost, exclusive of planning, architecture, engineering and administrative costs. This factor assumes projects include multiple deficiencies, which are then consolidated into single projects for economies of scale. The general requirements factor has not been adjusted for Indian Preference.

- **Area Cost Factor**

The Area Cost Factor used in the cost estimates for this facility is shown in Section VI of this report. The area cost factors are taken from a recent study completed for the Denali Commission for statewide healthcare facilities. The numbers are the result of a matrix of cost variables including such items as air travel, local hire costs, room and board, freight, fire protection equipment, foundation requirements, and heating equipment as well as contractor costs such as mobilization, demobilization, overhead, profit, bonds and insurance. These parameters were reconsidered for each village, following the site visit, and were modified, if necessary.

- **Contingency for Design Unknowns (Estimating Contingency)**

The Design Unknowns Contingency is an estimator's contingency based on the schematic nature of the information provided, the lack of any real design, and the assumption that any project will encompass related work not specifically mentioned. The factor used is 1.15.

- **Estimated Total Cost**

This is the total estimated bid cost for work completed under Davis Bacon wage contracts, assuming construction before year-end 2001. This is the number that is entered in the front of the deficiency form. No inflation factor has been applied to this data.

- **Project Cost Factors**

Similar to new clinics, the following project factors have been included in Section VI of this report.

Design Services is included at 10% to cover professional services including engineering and design.

Construction Contingency is included at 10% of the Base Costs to cover changes encountered during construction.

Construction Administration has been included at 8% of the Base Costs. This is for monitoring and administration of the construction contract.

- **Estimated Total Project Cost of Remodel/Addition**

This is the total estimated cost of the project including design services, the construction contract cost for work completed under Davis Bacon wages and assuming construction before year-end 2001. No inflation factor has been applied to this data.

## **V. SUMMARY OF EXISTING CLINIC DEFICIENCIES**

The attached table summarizes the deficiencies at the clinic and provides a cost estimate to accomplish the proposed modifications. If all deficiencies were to be addressed in a single construction project there would be cost savings that are not reflected in this tabulation. The total cost of remodel/addition shown in Section VI is intended to show an overall remodel cost that reflects this economy. Refer to Section VI for a comparison of remodel/addition costs to the cost of new construction. The specific deficiency sheets are included in Appendix A.

## **VI. NEW CLINIC ANALYSIS**

The decision on whether to fund new clinic construction or a remodel/addition of the existing clinic is to be determined by comparing the cost of a new facility designed to meet the program requirements of the Alaska Rural Primary Care Facilities minimum area requirements with the projected combined cost of renovating, remodeling and adding onto the existing building to provide an equivalent facility. If the cost of the remodel/addition project is greater than 75% of the cost of constructing an altogether new facility then a new facility is recommended. That ratio is computed as follows:

- **The cost of a new clinic in Kivalina is projected to be:**

Base Anchorage Cost per s.f.	\$183/ s.f.
Medical Equipment Costs @ 17%	\$31
Design Services 10%	\$18
Construction Contingency 10%	\$18
Construction Administration. 8%	\$15
Sub-total	\$265/ s.f.
Area Cost Factor for Kivalina 1.52*	
Adjusted Cost per s.f.	\$404/ s.f.

**Total Project Cost of NEW BUILDING 2,000 x \$404 = \$808,000**

- **The cost of a Remodel/Renovation/Addition is projected to be:**

Projected cost of code/condition renovations (From the deficiency summary)  
90% of cost of code/condition improvement\*\* \$242,477 Renovation

Projected cost of remodeling work (See A08)  
1,064 s.f. clinic @ 100% remodel = 1,064 s.f. \$144,326 Remodel

Projected cost of building addition (See A09)  
2,000 s.f. – 1,064 s.f. = 936 s.f. \$427,362 Addition  
Design 10%, Const. Contingency 10%, Const. Admin. 8% \$227,966

**Total Project Cost of REMODEL/ADDITION \$1,042,131**

- **Ratio of remodel:new is \$1,042,131 : \$808,000 = 1.29X**

The cost of a remodel/addition for this clinic would cost 129% the cost of a new clinic, therefore, a new clinic is recommended for this community.

\* The Area Cost Factor was refined by Estimations, Inc. in July 2001 based on information obtained during the site visit.

\*\* The 90% factor represents economy of scale by completing all renovation work in the same project.

**Appendix A: SPECIFIC DEFICIENCIES LISTING**

Refer to the attached sheets for the listing of the individual deficiencies and the corrective action recommended.



## **Appendix B: GENERAL SITE PHOTOGRAPHS**

The following sheets provide additional photographic documentation of the existing building and surroundings.

**Appendix C: ADCED Community Profile**

Refer to the attached document prepared by Alaska Department of Community and Economic Development profiling the community of Kivalina.